

WHAT IS CLAIMED IS:

1. A delivery source of oxygen for oxygenating blood and tissue, the source comprising at least one oxygen carrier supported by a substrate.
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2. The source of claim 1 wherein the oxygen carrier is incorporated into the substrate.
- 10 3. The source of claim 1 wherein the oxygen carrier is attached to the substrate.
4. The source of claim 1 wherein the substrate comprises a membrane or thin film.
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5. The source of claim 1 wherein the substrate comprises a hollow tube.
6. The source of claim 3 wherein the tube comprises a porous inner surface membrane incorporating the oxygen carrier and the source further comprises a channel transport system for passing liquid through the porous surface.
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7. The source of claim 1 wherein the substrate comprises an inflatable balloon.
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8. The source of claim 7 wherein the oxygen carrier comprises a thin film membrane wrapped around a surface of the balloon.
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9. The source of claim 1 wherein the substrate comprises a perfusion balloon catheter.

10. The source of claim 9 further comprising a removable housing disposed around a balloon portion of the balloon catheter.

5 11. The source of claim 9 further comprising an eluding portion, on a surface of the catheter, having a plurality of holes communicating with a perfusion channel through the balloon catheter.

10 12. The source of claim 1 wherein said substrate comprises a coronary wire.

15 13. The source of claim 12 wherein the oxygen carrier is firmly attached to a tip of said coronary wire.

14. The source of claim 1 wherein said substrate comprises a stent delivery balloon.

20 15. The source of claim 1 wherein said substrate comprises a tissue patch.

16. The source of claim 1 wherein said substrate comprises an ionizing radiation source.

25 17. The source of claim 16 wherein said ionizing radiation source comprises a beta-particle emitter.

30 18. The source of claim 1 wherein said substrate comprises an ultraviolet light source.

19. The source of claim 1 wherein said substrate comprises a porous polymer.

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20. The source of claim 19 wherein said porous polymer includes pores having sizes the range of about 20 to about 200 microns.

5 21. The source of claim 19 wherein said porous polymer is selected from a group of polymers including Teflon, polyethylene, polyethylene terephthalate, nylon, silicon, and cellulose acetate.

10 22. The source of claim 1 wherein said oxygen carrier comprises a fluorocarbon.

15 23. The source of claim 1, wherein said oxygen carrier comprises a fluorocarbon solution.

24. The source of claim 1, wherein said oxygen carrier is lipophilic.

20 25. The source of claim 1 further comprising a housing for protectively covering said substrate in order to prevent leakage of gaseous liquids.

25 26. The source of claim 1 further comprising a removable protective film coating covering said substrate in order to prevent escape of oxygen molecules.

30 27. The source of claim 1, wherein the oxygen carrier is present in a liquid solution disposed in a housing container.

28. The source of claim 1, wherein said substrate comprises a porous polymer, wherein the polymer includes pores having sizes in the range of

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about 20 through 200 microns and wherein the polymer is selected from a group of polymers including Teflon, polyethylene, polyethylene terephthalate, nylon, silicon, and cellulose acetate.

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